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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,419	12/21/2001	John E. Hudson	584-1048	5736

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EXAMINER	
TORRES, JUAN A	
ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/032,419	HUDSON ET AL.	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-12,21-23 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-12,21-23 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10-30-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 10/30/2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9, 10, 12, 21, 22, and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by the IEEE 802.11a standard (Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, High-speed Physical Layer in the 5 GHz Band, 1999).

As per claim 9 the IEEE802.11a discloses a method of receiving data over a communications network, comprising: (a) receiving a signal over the network which

carries a plurality of data streams modulated at different respective modulation levels (section 17 pages 3-45, section 17.3.8.1 page 24 table 86), and (b) demodulating a first data stream from the signal (section 17 pages 3-45, section 17.3.8.1 page 24 figure 118), and (c) attempting to demodulate at least one further data stream from the signal (section 17 pages 3-45, section 17.3.8.1 page 24 figure 118).

As per claim 10 the IEEE802.11a discloses that the modulation of the radio signal is quadrature amplitude modulation (section 17 pages 3-45, section 17.3.8.1 page 24 table 86).

As per claim 12 the IEEE802.11a discloses sending an acknowledgement for each data portion of a data stream which is successfully received and demodulated (section 9 pages 70-97 IEEE802.11).

As per claim 21 the IEEE802.11a discloses a demodulator arranged to demodulate a signal having a plurality of data streams modulated at different respective modulation levels (section 17 pages 3-45, section 17.3.8.1 page 24 table 86).

As per claim 22 the IEEE802.11a discloses demodulate an QAM signal (section 17 pages 3-45, section 17.3.8.1 page 24 table 86).

As per claim 27 the IEEE802.11a discloses a receiver including a demodulator arranged to demodulate a signal having a plurality of data streams modulated in a way which provides different susceptibility to noise (section 17 pages 3-45, section 17.3.8.1 page 24 table 86 and section 17.3.9.7 page 29).

As per claim 28 the IEEE802.11a discloses that the demodulator is arranged to demodulate a received signal modulated at different respective modulation levels for each data stream (section 17 pages 3-45, section 17.3.8.1 page 24 table 86).

As per claim 29 the IEEE802.11a discloses a computer program which when executed on a suitable receiver in a network causes the receiver to: (a) receive a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (section 17 pages 3-45, section 17.3.8.1 page 24 table 86 and figure 118 and Annex D pages 469-522 IEEE802.11 and pages 51-53 IEEE802.11a), and (b) demodulate a first data stream from the signal (section 17 pages 3-45, section 17.3.8.1 page 24 table 86 and figure 118 and Annex D pages 469-522 IEEE802.11 and pages 51-53 IEEE802.11a), and (c) attempt to demodulate at least one further data stream from the signal (section 17 pages 3-45, section 17.3.8.1 page 24 table 86 and figure 118 and Annex D pages 469-522 IEEE802.11 and pages 51-53 IEEE802.11a).

Claims 9, 10, 12, 21, 22, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Qiao ("Goodput Enhancement of IEEE 802.11a Wireless LAN via Link Adaptation", in Proc. IEEE ICC'2001, Helsinki, Finland, June 11~14, 2001).

As per claim 9 Qiao discloses a method of receiving data over a communications network, comprising: (a) receiving a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (pages 1-5 table 1), and (b) demodulating a first data stream from the signal (pages 1-5 table 1), and (c)

attempting to demodulate at least one further data stream from the signal (pages 1-5 table 1).

As per claim 10 Qiao discloses that the modulation of the radio signal is quadrature amplitude modulation (pages 1-5 table 1).

As per claim 12 Qiao discloses sending an acknowledgement for each data portion of a data stream which is successfully received and demodulated (pages 1-5 table 1 and section II.A page 2).

As per claim 21 Qiao discloses a demodulator arranged to demodulate a signal having a plurality of data streams modulated at different respective modulation levels (pages 1-5 table 1).

As per claim 22 Qiao discloses demodulate an QAM signal (pages 1-5 table 1).

As per claim 27 Qiao discloses a receiver including a demodulator arranged to demodulate a signal having a plurality of data streams modulated in a way which provides different susceptibility to noise (pages 1-5 table 1 and figures 6-9).

As per claim 28 Qiao discloses that the demodulator is arranged to demodulate a received signal modulated at different respective modulation levels for each data stream (pages 1-5 table 1).

As per claim 29 Qiao discloses a computer program which when executed on a suitable receiver in a network causes the receiver to: (a) receive a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (pages 1-5 table 1), and (b) demodulate a first data stream from the

signal (pages 1-5 table 1), and (c) attempt to demodulate at least one further data stream from the signal (pages 1-5 table 1).

Claims 9, 10, 21, 22, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Schafer (US 6404755 B1).

As per claim 9 Schafer discloses a method of receiving data over a communications network, comprising: (a) receiving a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (figure 5 and 6 column 10 line 21 to column 11 line 57), and (b) demodulating a first data stream from the signal (figure 5 and 6 column 10 line 21 to column 11 line 57), and (c) attempting to demodulate at least one further data stream from the signal (figure 5 and 6 column 10 line 21 to column 11 line 57).

As per claim 10 Schafer discloses that the modulation of the radio signal is quadrature amplitude modulation (figure 5 and 6 column 10 line 21 to column 11 line 57).

As per claim 21 Schafer discloses a demodulator arranged to demodulate a signal having a plurality of data streams modulated at different respective modulation levels (figure 5 and 6 column 10 line 21 to column 11 line 57).

As per claim 22 Schafer discloses demodulate an QAM signal (figure 5 and 6 column 10 line 21 to column 11 line 57).

As per claim 27 Schafer discloses a receiver including a demodulator arranged to demodulate a signal having a plurality of data streams modulated in a way which provides different susceptibility to noise (figure 1 column 4 line 64 to column 5 line 43).

As per claim 28 Schafer discloses that the demodulator is arranged to demodulate a received signal modulated at different respective modulation levels for each data stream (figure 5 and 6 column 10 line 21 to column 11 line 57).

As per claim 29 Schafer discloses a computer program which when executed on a suitable receiver in a network causes the receiver to: (a) receive a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (figure 5 and 6 column 10 line 21 to column 11 line 57), and (b) demodulate a first data stream from the signal (figure 5 and 6 column 10 line 21 to column 11 line 57), and (c) attempt to demodulate at least one further data stream from the signal (figure 5 and 6 column 10 line 21 to column 11 line 57).

Claims 9, 10, 12, 21, 22, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Trachewsky (US 6891881).

As per claim 9 Trachewsky discloses a method of receiving data over a communications network, comprising: (a) receiving a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (figures 30 and 12a-12g column 20 line 9 to column 21 line 46), and (b) demodulating a first data stream from the signal (figures 30 and 12a-12g column 20 line 9 to column 21 line 46), and (c) attempting to demodulate at least one further data stream from the signal (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 10 Trachewsky discloses that the modulation of the radio signal is quadrature amplitude modulation (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 12 Trachewsky discloses sending an acknowledgement for each data portion of a data stream which is successfully received and demodulated (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 21 Trachewsky discloses a demodulator arranged to demodulate a signal having a plurality of data streams modulated at different respective modulation levels (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 22 Trachewsky discloses demodulate an QAM signal (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 27 Trachewsky discloses a receiver including a demodulator arranged to demodulate a signal having a plurality of data streams modulated in a way which provides different susceptibility to noise (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 28 Trachewsky discloses that the demodulator is arranged to demodulate a received signal modulated at different respective modulation levels for each data stream (figures 30 and 12a-12g column 20 line 9 to column 21 line 46).

As per claim 29 Trachewsky discloses a computer program which when executed on a suitable receiver in a network causes the receiver to: (a) receive a signal over the network which carries a plurality of data streams modulated at different respective modulation levels (figures 30 and 12a-12g column 20 line 9 to column 21 line 46), and (b) demodulate a first data stream from the signal (pages 1-5 table 1), and (c) attempt to demodulate at least one further data stream from the signal (pages 1-5 table 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE 802.11a standard (Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, High-speed Physical Layer in the 5 GHz Band, 1999) as applied to claim 9 above, and further in view of Ishio (US 4039961).

As per claim 11 IEEE802.11a discloses claim 9. IEEE802.11a doesn't disclose a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). IEEE802.11a and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by IEEE802.11a with the layered modulation disclosed

by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine IEEE802.11a with Ishio to obtain the invention as specified in claim 11.

As per claim 23 IEEE802.11a discloses claim 21. IEEE802.11a doesn't disclose to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). IEEE802.11a and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by IEEE802.11a with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine IEEE802.11a with Ishio to obtain the invention as specified in claim 23.

Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qiao ("Goodput Enhancement of IEEE 802.11a Wireless LAN via Link Adaptation", in Proc. IEEE ICC'2001, Helsinki, Finland, June 11~14, 2001) as applied to claim 9 above, and further in view of Ishio (US 4039961).

As per claim 11 Qiao discloses claim 9. Qiao doesn't disclose a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Qiao and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Qiao with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Qiao with Ishio to obtain the invention as specified in claim 11.

As per claim 23 Qiao discloses claim 21. Qiao doesn't disclose to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Qiao and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Qiao with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Qiao with Ishio to obtain the invention as specified in claim 23.

Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schafer (US 6404755 B1) as applied to claim 9 above, and further in view of Ishio (US 4039961).

As per claim 11 Schafer discloses claim 9. Schafer doesn't disclose a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Schafer and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Schafer with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Schafer with Ishio to obtain the invention as specified in claim 11.

As per claim 23 Schafer discloses claim 21. Schafer doesn't disclose to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to

demodulate each said further data stream. Ishio discloses to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Schafer and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Schafer with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Schafer with Ishio to obtain the invention as specified in claim 23.

Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trachewsky (US 6891881) as applied to claim 9 above, and further in view of Ishio (US 4039961).

As per claim 11 Trachewsky discloses claim 9. Trachewsky doesn't disclose a QPSK signal at a first assumed amplitude level, normalizing the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses a QPSK signal at a first assumed amplitude level, normalizing

the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and repeating the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Trachewsky and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Trachewsky with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Trachewsky with Ishio to obtain the invention as specified in claim 11.

As per claim 23 Trachewsky discloses claim 21. Trachewsky doesn't disclose to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream. Ishio discloses to demodulate the signal as a QPSK signal at a first assumed amplitude level, to normalize the remaining signal by subtracting the decoded phase position of the demodulated first QPSK data word from the received signal and to repeat the QPSK decoding and normalizing steps for progressively smaller assumed amplitude levels to demodulate each said further data stream (figures 1-5 column 4 lines 1-52). Trachewsky and Ishio are analogous art

because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the receiving circuit disclosed by Trachewsky with the layered modulation disclosed by Ishio. The suggestion/motivation for doing so would have been to provide an optical communication system which can generate a radio frequency signal excellent in noise characteristics (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Trachewsky with Ishio to obtain the invention as specified in claim 23.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oshima (US 6724976) discloses a communication system for transmission/reception of a digital signal through modulation of its carrier wave and demodulation of the modulated signal. Lyon (US 5838727) discloses a method and apparatus for transmitting and receiving digital data over a bandpass channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres
5-11-2005

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER